

New and interesting mites
from the Geneva Museum LXVIII.
Oribatids from Sabah (East Malaysia) IV
(Acari: Oribatida)

par

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With 56 figures

ABSTRACT

New and interesting mites from the Geneva Museum LXVIII. Oribatids from Sabah (East Malaysia) IV (Acari: Oribatida). — 13 species are identified, 7 of them are described as new to science. For two species it was necessary to establish two new genera: *Borneremaeus* gen. n. (*Otocephidae*) and *Pseudocarabodes* gen. n. (*Carabodidae*).

INTRODUCTION

Dr. B. Hauser (Curator of the Arthropoda collections at the Muséum d'Histoire naturelle, Geneva) regularly collected very interesting mites on his expeditions, made in collaboration with Dr. C. Lienhard, to the Oriental Region since 1982, especially to Malaysia and Indonesia. This material has already been partially studied (MAHUNKA 1987a, b, 1988). The present paper concentrates on oribatids from Sabah obtained by extraction in Berlese funnels or Winkler apparatus in 1982. 13 species were identified, of which 7 are new to science, two of them requiring the establishment of two new genera: *Borneremaeus* gen. n. (*Otocephidae*) and *Pseudocarabodes* gen. n. (*Carabodidae*).

The length, height and width measurements reflect the smallest and highest values taken. When a long series of specimens was available at least five measurements of each were recorded.

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LIST OF LOCALITIES

- Sab-82/7: Sabah (Sandakan Residency): Sepilok: "Kabili-Sepilok Forest Reserve" (KSFR), forêt près du "Pond" (étang formant la réserve d'eau pour Sepilok), Secondary Lowland Forest, tamisage de feuilles mortes et de bois pourri, 30 m, 23.IV.1982 (W) *.
- Sab-82/17: Sabah (West Coast Residency): Mt Kinabalu: "Bukit Ular Trail" (sentier reliant la "Kambarangan Road" à la "Power Station"), forêt de *Lithocarpus-Castanopsis*, prélèvement de sol au pied d'un grand arbre, 1850 m, 28.IV.1982 (B) **.
- Sab-82/22: Sabah (West Coast Residency): Mt Kinabalu: "Summit Trail" (sentier reliant la "Power Station" au sommet), en dessous de la cabane "Pinar Laban Huts", prélèvement de sol dans une forêt de *Leptospermum*, 3270 m, 30.IV.1982 (B).
- Sab-82/27: Sabah (Sandakan Residency): Sepilok, KSFR, forêt près de "Orang-Utan Rehabilitation Station" (OURS), Lowland Dipterocarp Forest, tamisages de feuilles mortes et de bois pourri prélevés dans les angles formés par les contreforts de grands arbres, 30 m, 3.V.1982 (W).
- Sab-82/42: Sabah (Sandakan Residency): Sepilok: KSFR, forêt près du Pond, Secondary Lowland Forest, prélèvement de feuilles mortes et de bois pourri au pied d'un arbre, 30 m, 10.V.1982 (B).

LIST OF IDENTIFIED SPECIES

APOPOPHORIDAE Niedbala, 1984

Apoplophora heterotricha Mahunka, 1987

Localities: Sab-82/7: 2 specimens; Sab-82/42: 2 specimens

Apoplophora lineata Mahunka, 1987

Locality: Sab-82/42: 1 specimen

Apoplophora spinosa Mahunka, 1987

Localities: Sab-82/7: 5 specimens; Sab-82/17: 9 specimens

PHTHIRACARIDAE Perty, 1841

Hoplophorella cucullata (Ewing, 1909)

Localities: Sab-82/7: 2 specimens; Sab-82/42: 2 specimens

Hoplophorella sabahna sp. n.

Hoplophthiracarus (Plonaphacarus) kugohi Aoki, 1969

Locality: Sab-82/7: 3 specimens

Hoplophthiracarus (Plonaphacarus) yoshii sp. n.

Phthiracarus (Archiphthiracarus) ornatus sp. n.

ORIBOTRITHIDAE Grandjean, 1954

Austrotrititia ramsayi sp. n.

Berndotrititia bulbifer Mahunka, 1987

Locality: Sab-82/27: 2 specimens

Sabacarus corneri Ramsay et Sheals, 1969

Localities: Sab-82/17: 10 specimens; Sab-82/22: 9 specimens

Terratrititia seconda sp. n.

* W: extraction par appareil Winkler-Moczarski.

** B: extraction par appareil Berlese.

HERMANNIIDAE Sellnick, 1928

Phyllhermannia coronata sp. n.

MICROTEGEIDAE Balogh, 1972

Suctotegaeus tumescitus Mahunka, 1987

L o c a l i t y : Sab-82/42: 5 specimens

MICROZETIDAE Grandjean, 1936

Microzetes tuberculatus Mahunka, 1987

L o c a l i t y : Sab-82/42: 2 specimens

CARABODIDAE C. L. Koch, 1837

Pseudocarabodes xenus gen. n., sp. n.

Yoshiobodes ornatus Mahunka, 1987

L o c a l i t y : Sab-82/42: 2 specimens

OTOCEPHEIDAE Balogh, 1961

Borneremaeus hauseri gen. n., sp. n.

Dolicheremaeus bruneiensis Aoki, 1967

L o c a l i t y : Sab-82/42: 5 specimens

Dolicheremaeus cicatricosus sp. n.

SUCTOBELBIDAE Grandjean, 1954

Suctobelbella variosetosa Hammer, 1961

L o c a l i t y : Sab-82/42: 1 specimen

DESCRIPTIONS

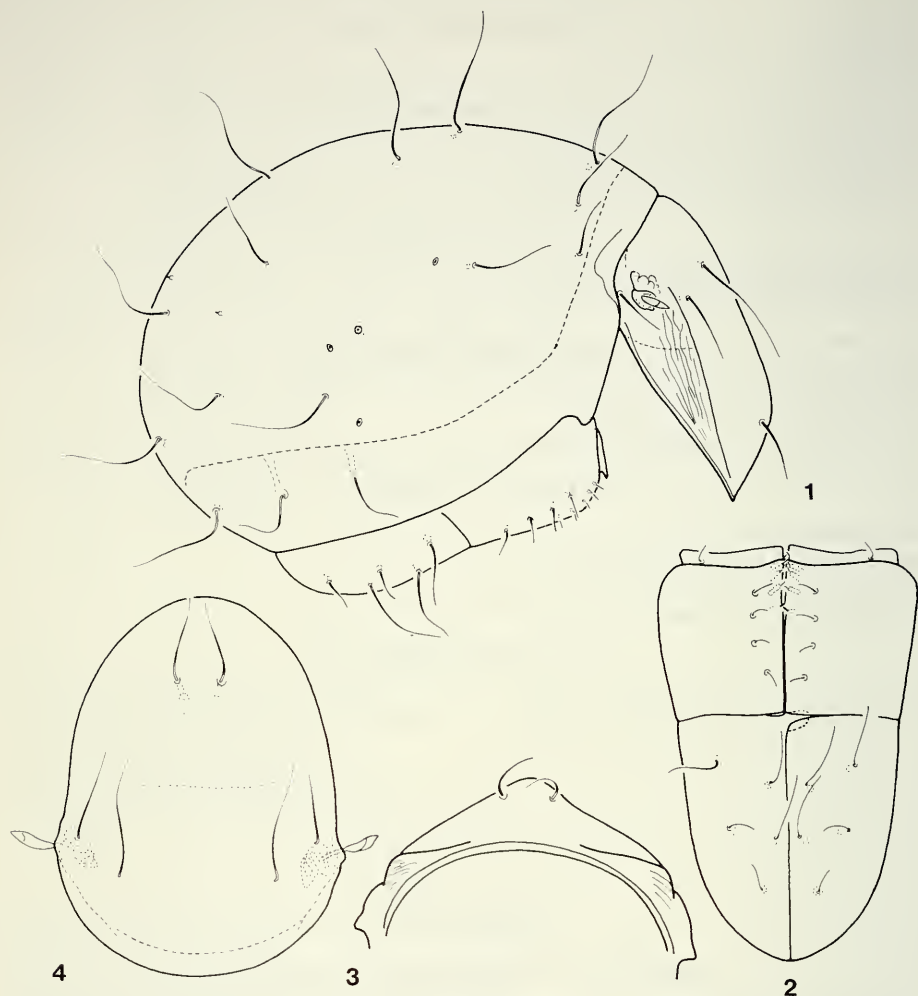
Phthiracarus (Archiphthiracarus) ornatus sp. n.

M e a s u r e m e n t s . — Length of aspis: 285-330 μ m, length of notogaster: 570-672 μ m, height of notogaster: 364-457 μ m.

A s p i s : Upper outline in lateral view (Fig. 1) straight, rostral part convex. Median part also highly convex, nearly triangular in anterior view (Fig. 3). Lateral crista well developed, long, not reaching to the lateral rim. Lateral surface between the crista and the lateral rim ornamented by distinct lines. Prodorsal setae fine (Fig. 4), exobothridial setae conspicuously long.

N o t o g a s t e r : All setae flagellate, no essential difference among them. Setae c_1 arising farther from the collar line than c_3 . Four pairs of lyrifissures present. The insertion of both vestigial setae well observable.

A n o g e n i t a l r e g i o n (Fig. 2): The position of the genital setae typical. Two pairs of ano-adanal setae present, two pairs of adanal setae (ad_1 and ad_2) much shorter than the others.



FIGS 1-4.

Pthiracarus (Archiphthiracarus) ornatus sp. n. — 1: body from lateral view, 2: anogenital region, 3: aspis from anterior view, 4: aspis from dorsal view.

Legs: Femur I with 4 setae. Setae *d* and *l''* not shorter than the ventral setae (*v'*, *v''*). Setae *ε* comparatively long and fine, solenidium ω_2 also very long. On genu IV seta *l'* present.

Material examined: Holotype: Sab-82/17; 13 paratypes: from the same sample. Holotype and 8 paratypes: MHNG¹, 5 paratypes (1307-PO-88): HNHM².

¹ MHNG: deposited in the Muséum d'Histoire naturelle, Genève.

² HNHM: deposited in the Hungarian Natural History Museum, Budapest, with identification number of the specimens in the Collection of Arachnida.

Remarks: The new species belongs to the subgenus *Archiphthiracarus* Balogh et Mahunka, 1969. It is distinguished from all related taxa by the sculpture of the lateral part of the aspis and the great difference in length existing among the adanal setae.

***Hoplophorella sabahna* sp. n.**

Measurements. — Length of aspis: 280-302 μm , length of notogaster: 482-505 μm , height of notogaster: 324-350 μm .

Aspis: Crista and lateral carina absent. Lateral rim well developed, reaching the rostrum, gradually narrowed anteriorly. Prodorsal surface — with the exception of the lateral part in front of the bothridium — ornamented by strong and large alveoli. Lateral part with a fine polygonate sculpture (Fig. 6). Prodorsal setae strong, setae *ro* and *le* short, spiniform, finely roughened, setae *in* long, strong, blunt at tip and strongly spiculate or spinose (Fig. 5). They are erect, but directed forwards and not upwards. Sensillus very short, its head rounded, covered by very fine spines (Fig. 8).

Notogaster: Fifteen pairs of notogastral setae present, all bacilliform and spiculate or spinose distally, but great differences in length and thickness exist among them. Setae *c*₃ much shorter and thinner than *c*₁, the former standing far anteriorly, on the collar line (Fig. 5). Two pairs of lyrifissures (*ia*, *im*) present. Alveoli of setae *f*₁ originating far posteriorly, between setae *h*₁.

Anogenital region: Genital setae arising in one row, near to the inner margin of the genito-aggenital plate, *g*₅-*g*₉ much thicker than the others. On the ano-adanal plate all setae blunt at tip. Setae *an*₁, *an*₂ and *ad*₁ equal in length, the latter stand nearly as far from *an*₁ as this from *an*₂. Setae *ad*₂ very long, curved distally (Fig. 10).

Legs: Setae *d* of femur I long, bifurcate distally. Setae *v*' very long, *v*'' very short (Fig. 7). On the tibia of leg IV (Fig. 9) setae *d* minute, standing near to the solenidium.

Formula of solenidia:

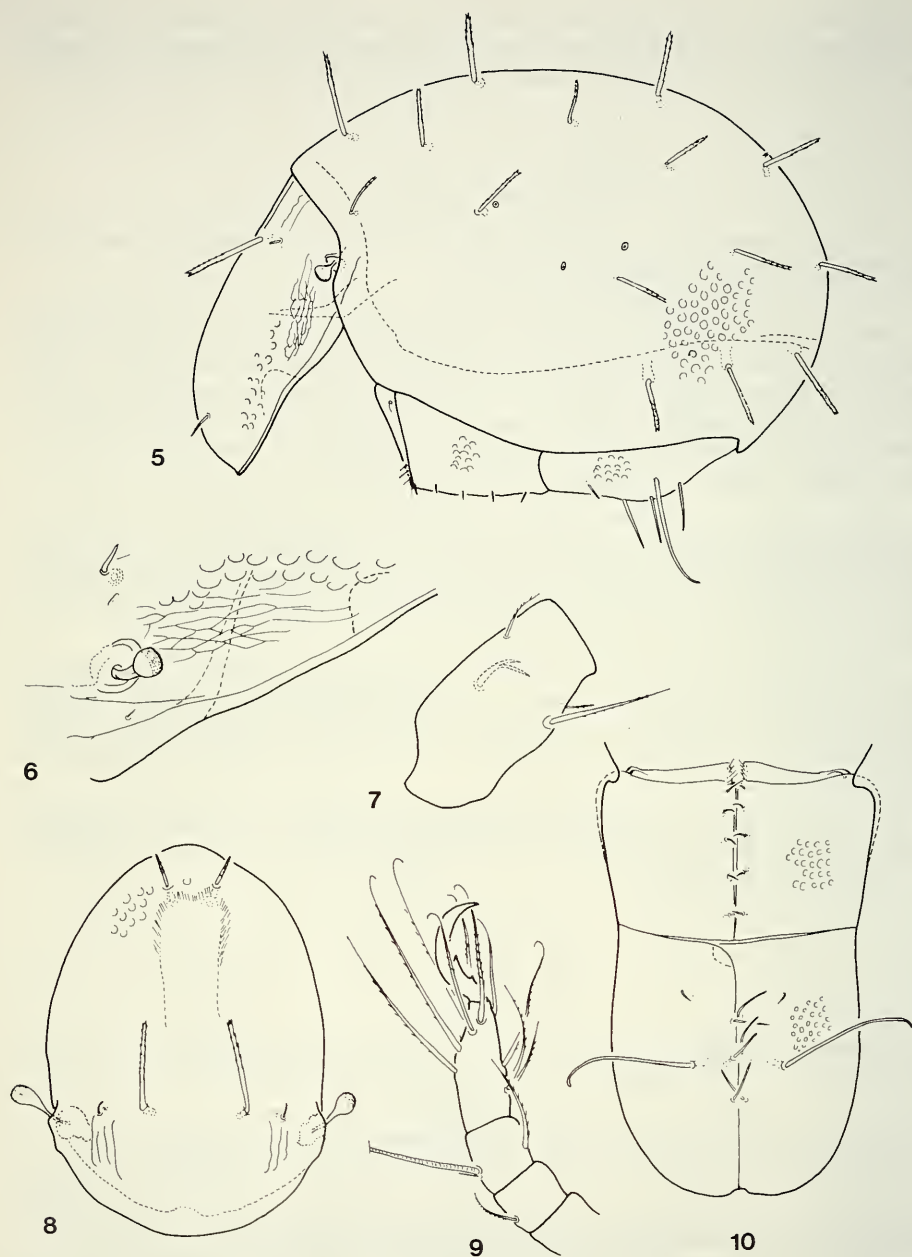
I: 2-1-3
II: 1-1-2
III: 0-1-1
IV: 0-1-0

Formula of setae:

I: 1-4-3-5-16-1
II: 1-3-2-3-11-1
III: 2-2-1-2-10-1
IV: 2-1-1-2-10-1

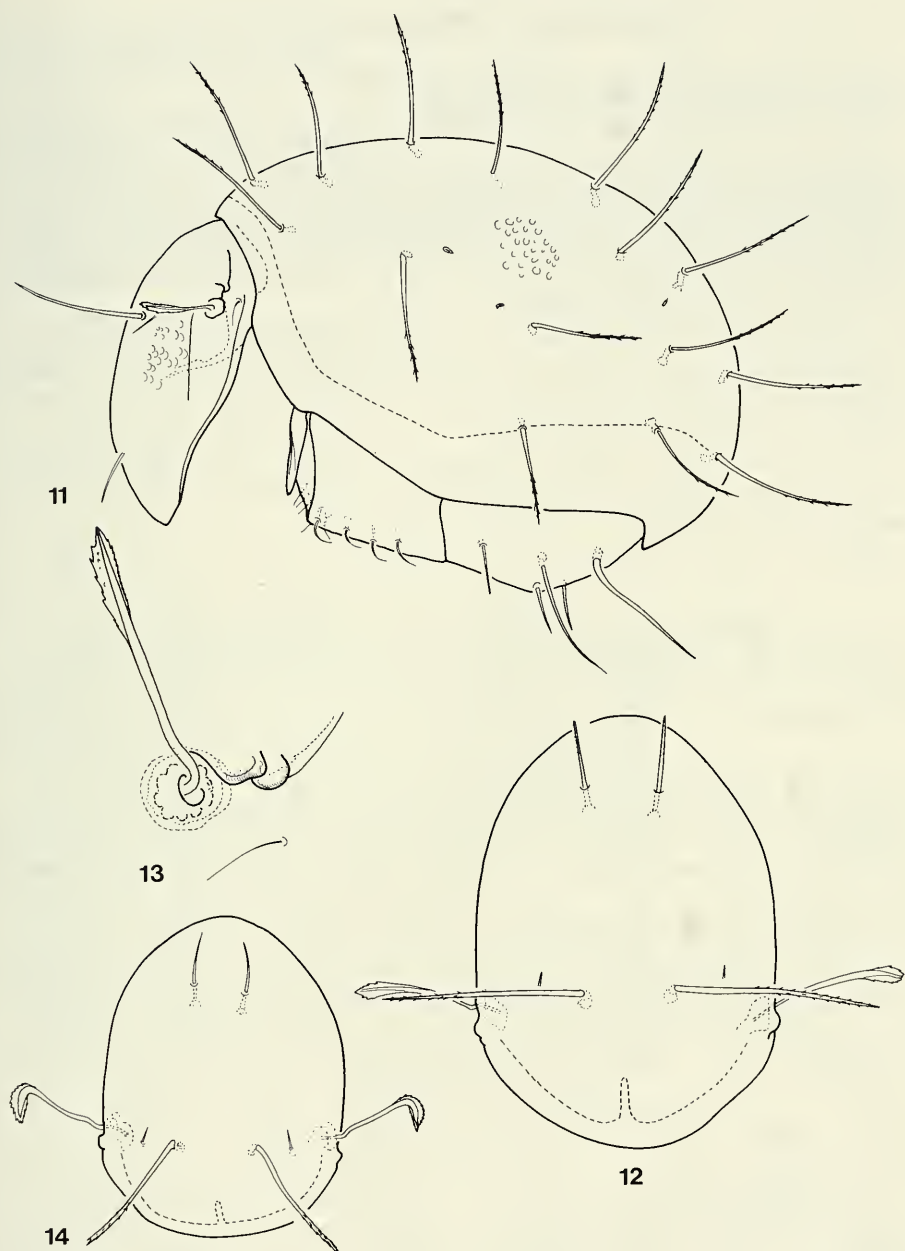
Material examined: Holotype: Sab-82/22; 8 paratypes: from the same sample. Holotype and 5 paratypes: MHNG, 3 paratypes (1305-PO-88): HNHM.

Remarks: The new species is well characterized by the short and round sensillus. This character is found in some other species too, but the new species is well distinguished from all the others by the characteristic polygonate sculpture on the lateral part of prodorsum. An additional feature is the great difference in length among the notogastral setae, e.g. setae *c*₃ < *c*₁.



FIGS 5-10.

Hoplophorella sabahna sp. n. — 5: body from lateral view, 6: sculpture of the lateral part of aspis, 7: femur of leg I, 8: aspis from dorsal view, 9: leg IV, 10: anogenital region.



FIGS 11-14.

Hoplophthiracarus (Plonaphacarus) yoshii sp. n. — 11: body from lateral view, 12: aspis from dorsal view, 13: bothridium and bothridial squama.

Hoplophthiracarus (Plonaphacarus) kugohi Aoki, 1969-14: aspis from dorsal view.

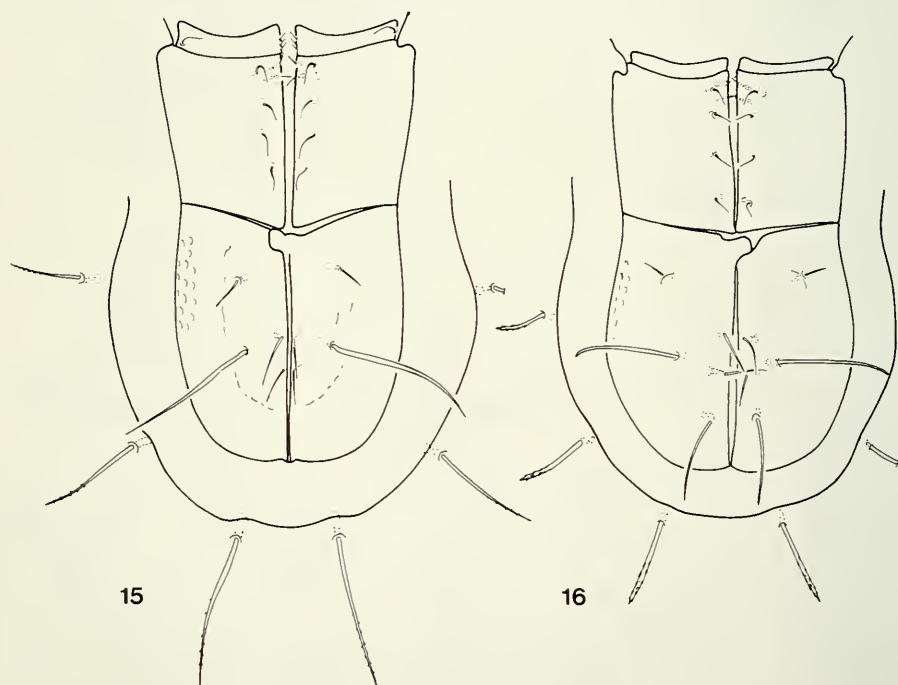
Hoplophthiracarus (Plonaphacarus) yoshii sp. n.

Measurements. — Length of aspis: 260-354 μm , length of notogaster: 486-624 μm , height of notogaster: 298-438 μm .

Aspis: Dorsal outline simply convex in lateral view (Fig. 11). Lateral carina weakly developed or absent, mostly only a short, fine line observable. Lateral rim narrow, long. Surface foveolate, foveolae much larger anteriorly than basally. Bothridial scale consists of two parts (Fig. 13), sensillus with serrate velum, gradually widened distally. Prodorsal setae — with the exception of the fine and simple *ex* — strong, long and ciliate. Setae *in* erect and arising near to each other (Fig. 12), the distance between them shorter than between setae *in* and bothridium.

Notogaster: Whole surface distinctly foveolate. Fifteen pairs of very long notogastral setae present, but great differences in length exist among them; setae *c*₁: 116 μm , *h*₁: 137 μm , *ps*₁: 143 μm , *ps*₄: 74 μm . The distance between setae *ps*₂ much shorter than the length of these setae (Fig. 11). Two pairs of lyrifissures present.

Ventral side (Fig. 15): Genital setae arranged in two longitudinal rows. Setae *g*₉-*g*₆ much longer than the others. Setae on the adanal plates finely roughened, setae *ad*₁ shorter than *ad*₂.



FIGS 15-16.

Hoplophthiracarus (Plonaphacarus) yoshii sp. n. — 15: anogenital region.
Hoplophthiracarus (Plonaphacarus) kugohi Aoki, 1969, 16: anogenital region.

Legs : Setae *d* of femur I serrate dorsally. The ϕ solenidium of leg IV much longer than the accompanying seta (*d*).

Material examined : Holotype: Sab-82/7; 5 paratypes: from the same sample; 13 paratypes: Sab-82/27; 10 paratypes: Sab-82/42. Holotype and 18 paratypes: MHNG, 10 paratypes: (1306-PO-88): HHNM.

Remarks : The new species is close to the type species of this subgenus: *H. (P.) kugohi* Aoki, 1969. However, the dorsal setae of the latter are much shorter, the distance between setae *ps*₂ is much longer than the length of these setae (Fig. 16), the interlamellar setae stand conspicuously near to each other and the position of these setae is normal.

I dedicate the new species to Prof. Dr. R. Yoshii, renowned collembologist, who helped very much in this collecting trip.

***Austrotritia ramsayi* sp. n.**

Measurements . — Length of aspis 429-567 μ m, length of notogaster: 793-1200 μ m, height of notogaster: 575-867 μ m.

Aspis (Fig. 20): Upper outline straight, convex basally and distally. Surface ornamented by fine longitudinal striation curving strongly anteriorly. Two strong lateral carinae present. Bothridial scale large. Rostral and interlamellar setae erect, slightly bacilliform, lamellar setae finer but not shorter than the preceding ones. Sensillus (Fig. 19) short, lanceolate, its surface spiculate or finely roughened.

Notogaster : Fourteen pairs of notogastral setae present. Two pairs of them (*c*₃ and *p*₃) setiform, with gradually narrowing distal end, the other twelve pairs blunt at tip. Setae *c*₁ originating far from the collar, much farther than *c*₂ or *c*₃. Five pairs of lyrifissures (hardly visible as is usual in this genus) and the insertions of the two vestigial notogastral setae present (Fig. 17).

Anogenital region (Fig. 18): Eight pairs of genital, three pairs of aggenital and also three pairs of adanal setae present. Anal setae absent.

Legs : Palp (Fig. 22) five-segmented, with the following setal formula: 2-0-2-9 + 1. All the legs tridactylous, the setal and solenidial formulae are as follows:

- I: 1-4-5-5-23-3 and 2-1-3 (Fig. 23)
- II: 1-4-4-3-20-3 and 1-1-2
- III: 3-2-3-3-12-3 and 1-1-0 (Fig. 21)
- IV: 3-2-2-3-11-3 and 1-1-0

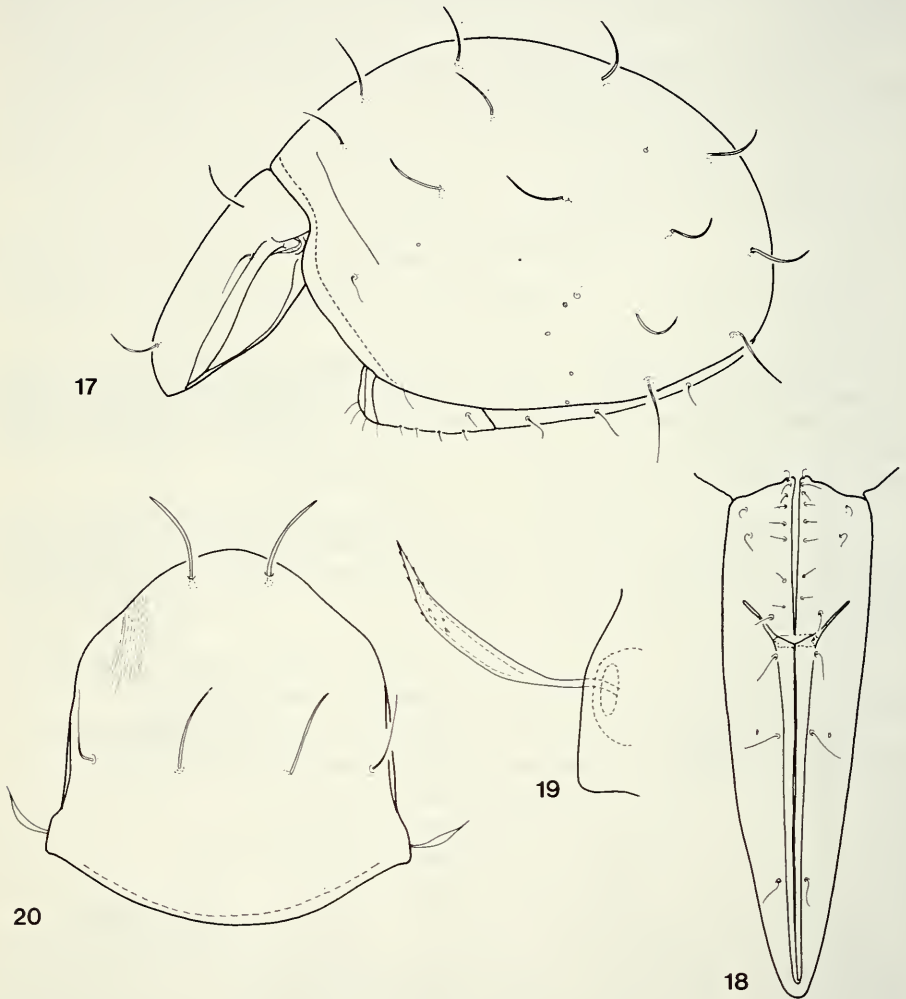
Femur I with a subapical cusp. Tarsus IV with normal paraxial ungual seta.

Material examined : Holotype: Sab-82/22; 9 paratypes: from the same sample. Holotype and 6 paratypes: MHNG, 3 paratypes (1308-PO-88): HHNM.

Remarks : On the basis of the anogenital setal formula (8-3-0-3) the new species stands closest to the other species from Sabah: *A. kinabaluensis* Ramsay & Sheals 1969. The new species is distinguished from the latter by the short and lanceolate sensillus (long and setiform in *kinabaluensis*) and by the setal formula of the legs (setae more numerous

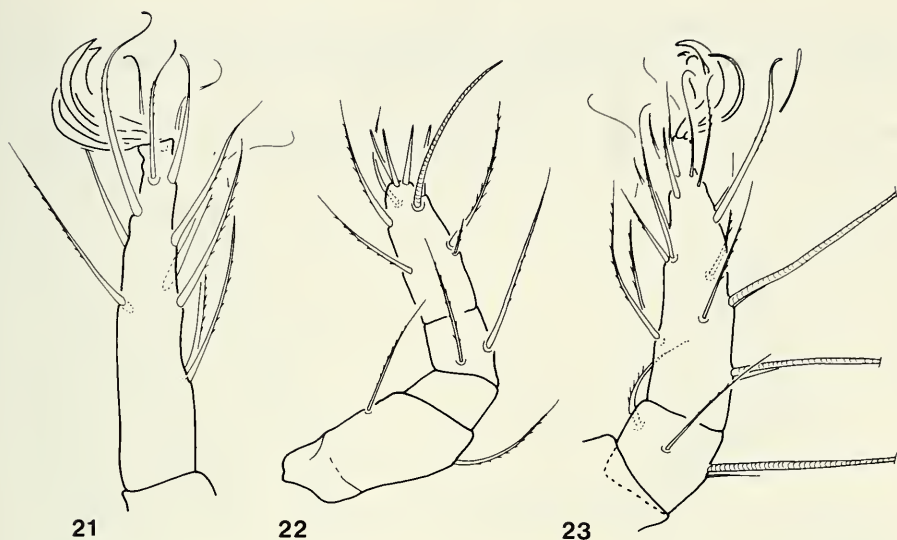
on tarsi I and II in the new species, but a higher number of setae on tarsus IV in *kinabaluensis*).

I dedicate the new species to Dr. G. Ramsay, one of the first explorer of the South-East Asian Oribatid fauna.



FIGS 17-20.

Austrotrititia ramsayi sp. n. — 17: body from lateral view, 18: anogenital region, 19: sensillus, 20: aspis from dorsal view.



FIGS 21-23.

Austrotritia ramsayi sp. n. — 21: tarsus of leg III, 22: palpus, 23: tibia and tarsus of leg I.

***Terratritia secondia* sp. n.**

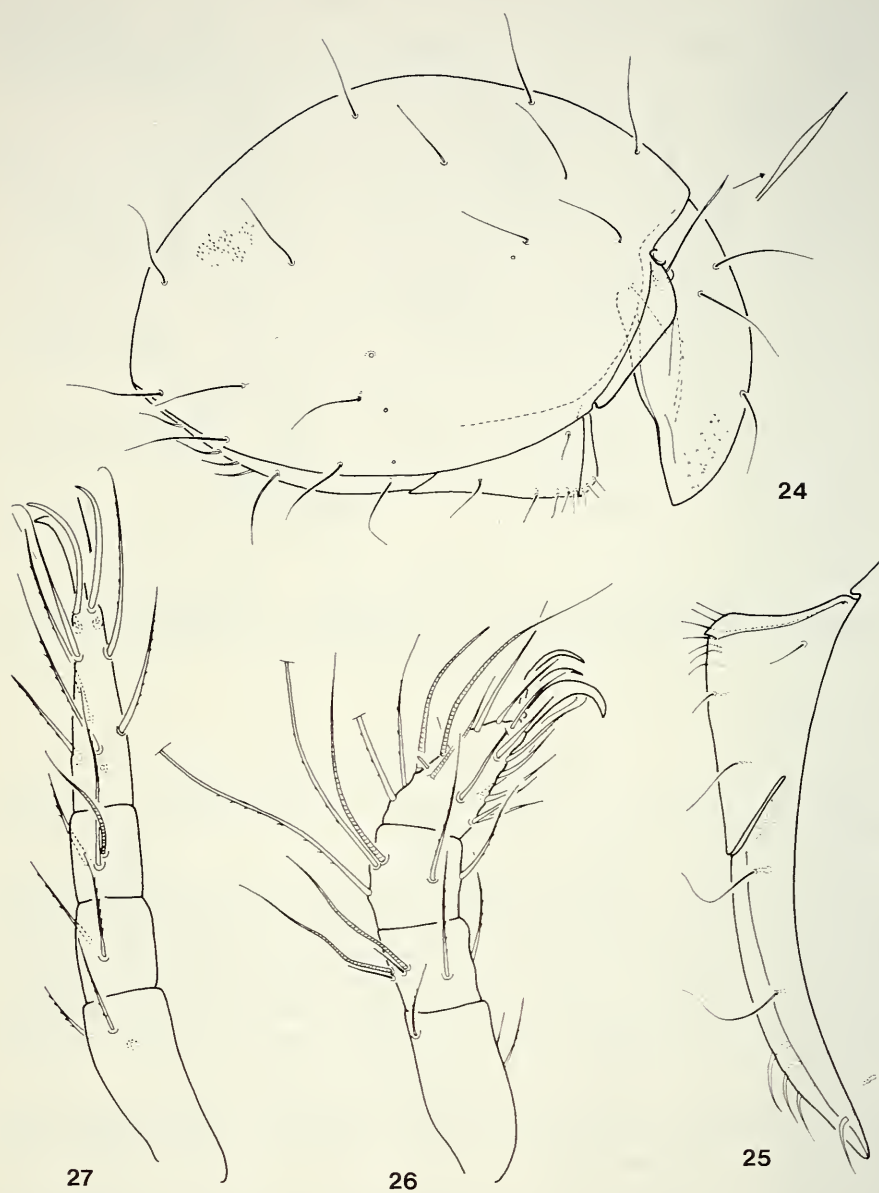
Measurements. — Length of aspis: 393-415 μm , length of notogaster: 750-786 μm , height of notogaster: 530-572 μm .

Aspis: High in lateral view, its upper outline convex. Surface irregularly foveolate or punctate. Lateral carina reduced, only a short part observable far from the bothridium. Lateral rim also short, but its basal part wide, it is not fused with the lateral carina anteriorly. Bothridial scale originating above and behind the bothridium. Five pairs of prodorsal setae present, two pairs of them in the exobothridial position, *exa* > *exp*, but both pairs comparatively long (Fig. 28). Lamellar, interlamellar, rostral and anterior exobothridial setae nearly equal in length, rostral setae slightly thicker than the others. Sensillus long and thin, its distal part scarcely dilated, lanceolate (Fig. 24).

Notogaster: Humeral part of notogaster strongly protruding anteriorly and separated by a sharp line (Fig. 24). Fourteen pairs of very fine, filiform notogastral setae and five pairs of lyrifissures present.

Anogenital region: Nine * pairs of long genital setae present. Setae *g*₉ stand very far from the others and far from the inner margin of the genito-aggenital plate (Fig. 25). Among the three pairs of adanal setae two filiform, as the other setae of the body, but setae *ad*₁ thick and short, just as the three pairs of anal setae.

* Setae *ag*₃ sensu RAMSAY & SHEALS (1969) in my opinion: *g*₁.

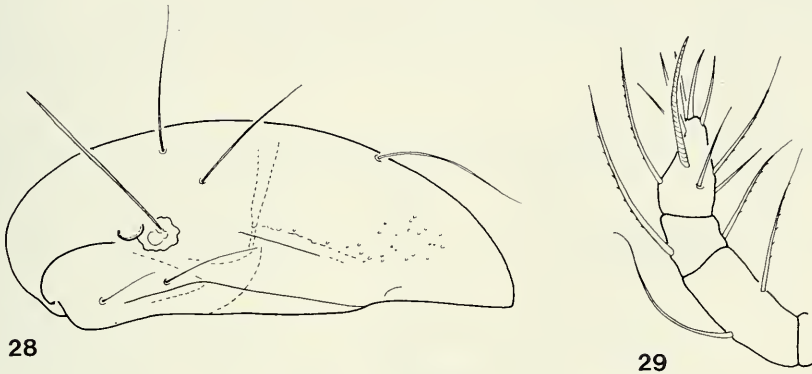


FIGS 24-27.

Terratritia seconda sp. n. — 24: body from lateral view, 25: anogenital region, 26: leg I, 27: leg IV.

Legs : The shape and the chaetotaxy of the palps (Fig. 29) and legs (Figs 26-27) corresponding well to the description and figures of *Terratritia askewi* Ramsay et Sheals, 1969.

Material examined : Holotype: Sab-82/17; 1 paratype: from the same sample. Holotype: MHNG, paratype: (1309-PO-88): HHNM.



FIGS 28-29.

Terratritia seconda sp. n. — 28: aspis from lateral view, 29: palpus.

Remarks : The new species stands very near to the type species of this genus (*T. askewi* Ramsay & Sheals, 1969). However the two species can be easily be separated by the following differences:

askewi Ramsay & Sheals

1. Exobothridial setae short, setae *exa* one-third as long as lamellar setae.
2. Sensillus setiform.
3. Lateral carina long, reaching to the lateral rim.
4. Notogastral setae short, c_1 shorter than the distance between its insertion and the anterior margin of notogaster.

seconda sp. n.

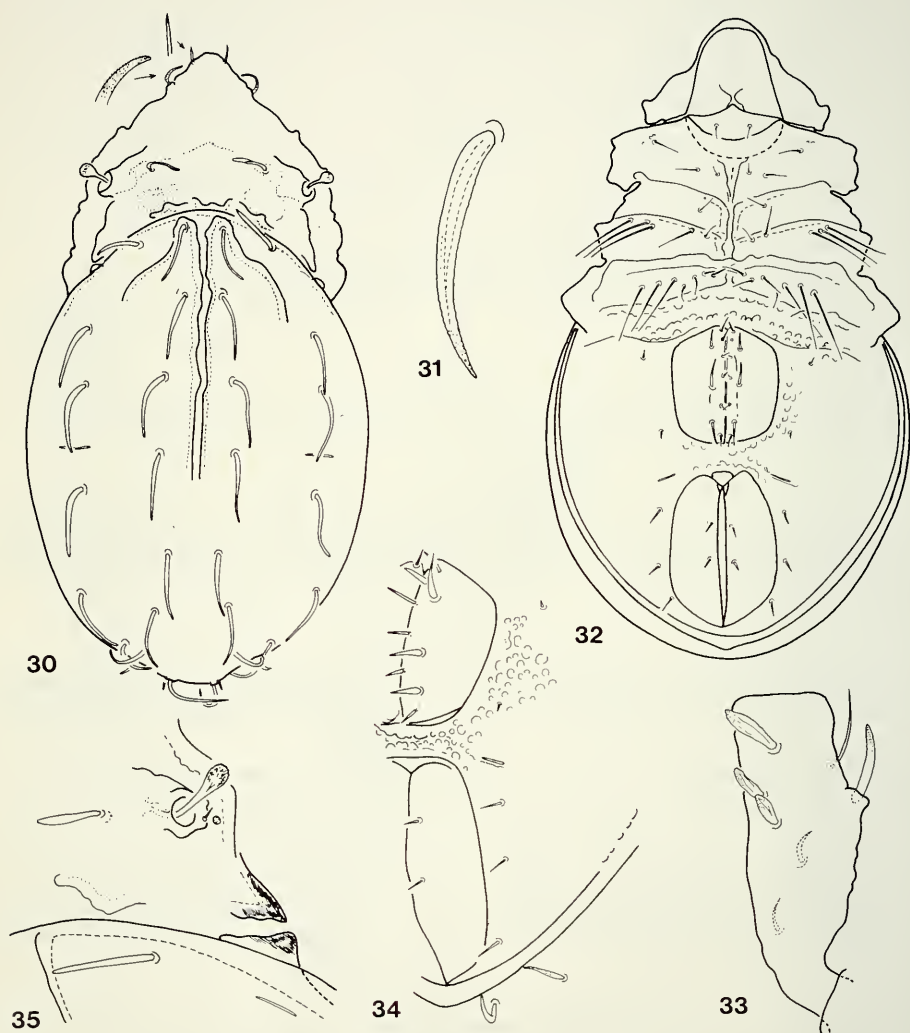
1. Exobothridial setae long, setae *exa* not shorter than lamellar or interlamellar setae.
2. Sensillus dilated distally.
3. Lateral carina very short ending far from the lateral rim.
4. Notogastral setae longer, setae c_1 longer than the distance between its insertion and the anterior margin of notogaster.

***Phyllhermannia coronata* sp. n.**

Measurements . — Length: 793-851 μ m, width: 356-454 μ m.

Prodorsum : Prodorsal surface finely punctate, this sculpture stronger on the interbothridial surface, especially in the two hollows. Bothridium well projected from the surface, a short costuliform thickening runs anteriorly from it. A strong, undulate ridge

present basally often divided into three parts (Fig. 30). Behind the bothridium a strong, triangulate tubercle present (Fig. 35). Prodorsal setae short, setae *ro* sharply pointed, setae *le* and *in* blunt at tip and finely roughened. Exobothridial setae minute. Sensillus short, with clavate head. Its surface spiculate.



FIGS 30-35.

Phyllhermannia coronata sp. n. — 30: dorsal side, 31: notogastral seta, 32: ventral side, 33: femur of leg I, 34: anogenital region, 35: lateral part of dorsosejugal region.

Notogaster: Surface finely punctate. Medially a pair of very strong cristae run posteriorly, their anterior part curving outwards and composing a wavy formation. One pair of lateral triangulate tubercles in opposite position to the prodorsal ones. Sixteen pairs of dilated, curved, blunt and finely roughened notogastral setae (Fig. 31) present.

Gnathosoma: Distinct labiogenal articulation. Rutellum with 4 teeth.

Coxisternal region: Apodemes and borders 1 and 2 normal, sejugal ones very strong and thick. Between *ap.* 4 and 5 a deep, wide hollow exists containing tubercles or pustules of different ornamented sizes. This sculpture continues over the anogenital region (Fig. 32). Epimeral setal formula: 3-1-5-7; some of them very long, directed backwards.

Anogenital region: Ventral plate around the genital aperture and anteriorly of the anal aperture pustulate. Nine pairs of sharply pointed genital, two pairs of very short aggenital, two pairs of spiniform anal and three pairs of setiform adanal setae (Fig. 34) present. Lyrifissures *iad* long.

Legs: Chaetotaxy corresponding to the "reduced" type. Setal formula of leg IV: 1-3-4-5-15-1. Femur of leg I (Fig. 33) with 7 setae.

Material examined: Holotype: Sab-82/22; 30 paratypes: from the same sample. Holotype and 20 paratypes: MHNG, 10 paratypes (1310-PO-88): HHNM.

Remarks: The new species is readily distinguished from all *Phyllhermannia* Berlese, 1917 species by the characteristic notogastral sculpture.

Pseudocarabodes gen. n.

Diagnosis: Family *Carabodidae*. Prodorsum with a transversal projection. Lamellar setae arising laterally on the surface of lamellae. Notogaster without hollow, but highly convex medially. Ten pairs of short, mostly phylliform notogastral setae present, one of them (*c*₂) arising on the shoulder. Epimeral setal formula: 3-1-2-2. Anogenital setal formula: 4-1-2-3.

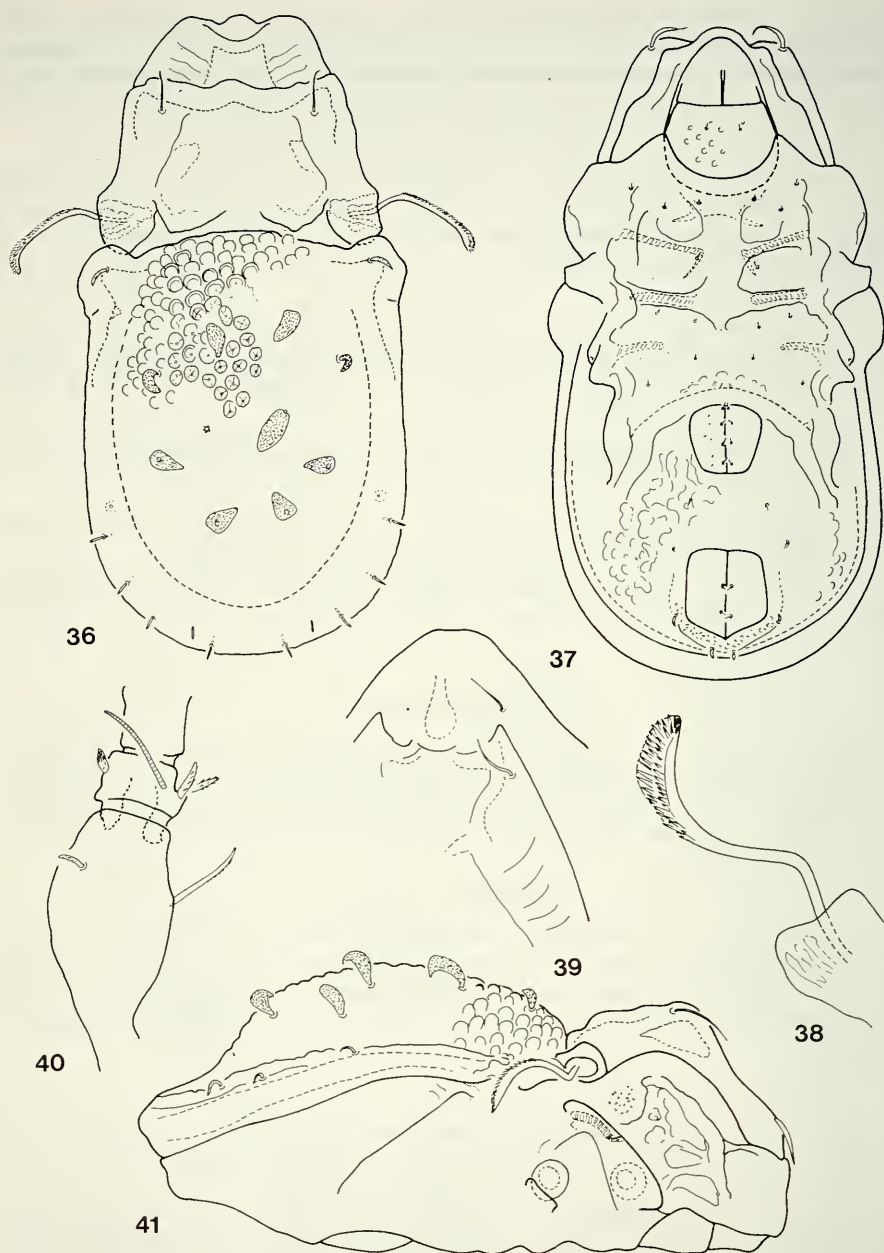
Type species: *Pseudocarabodes xenus* sp. n.

Remarks: The new genus is related to *Machadocephus* Balogh, 1958. It may be distinguished by the absence of the notogastral hollow, setae *c*₂ in humeral position, and the 10 pairs of notogastral setae. The latter feature is known in this group only in *Meriocephus* Aoki, 1973. However, the other characters of this genus are considerably different.

Pseudocarabodes xenus sp. n.

Measurements. — Length: 229-301 µm, width: 125-148 µm.

Prodorsum: Rostrum rounded, lamellae with a triangular apex (Fig. 39). Anterior part of lamellae with transversal crests. Basal part of the interlamellar region with one pair of hollows. Tutorium well developed, but without cuspis. Median part of prodorsum highly convex, with a transversal projection, but its median part is excavated. Rostral, lamellar and interlamellar setae alike, fine and simple. Interlamellar setae arising on the lamellae. Sensillus (Fig. 38) gradually dilated, with a unilaterally spinose rounded distal end.



FIGS 36-41.

Pseudocarabodes xenus gen. n., sp. n. — 36: dorsal side, 37: ventral side, 38: sensillus, 39: rostral region, 40: genu of leg II, 41: body from lateral view.

Notogaster: Dorsosejugal region without hollow. Median part of notogaster highly convex, lateral and posterior part concave (Fig. 41), very strong humeral appendages observable. Median part pustulate, lateral and posterior parts smooth or wrinkled. Ten pairs of notogastral setae, one of them in humeral position and very far from all the others. Among these setae 5 pairs wide and phylliform, 4 pairs in posteromarginal position small and much finer (Fig. 36).

Coxisternal region: Sternal apodemes or borders absent, epimeral region without well-framed epimeres. All epimeral setae minute, setae 3c and 4c were not observable.

Anogenital region: The position of the genital and anal aperture normal, the distance between them not greater than the length of the genital aperture. Ventral plate ornamented by strong sculpture consisting of rugae or pustules. All setae in this region minute; anogenital setal formula: 4-1-2-3. Setae ad_1 arising on a chitinous thickening very near to each other in postanal position (Fig. 37).

Legs: Setae u on all tarsi short, thick and bifurcate. All setae of genu II short, phylliform (Fig. 40).

Material examined: Holotype: Sab-82/17; 1 paratype: from the same sample; 2 paratypes: Sab-82/27; 2 paratypes: Sab-82/42. Holotype and 3 paratypes: MHNG, 2 paratypes (1311-PO-88): HHNM.

Borneremaeus gen. n.

Diagnosis: Family *Otocepheidae*, subfamily *Dolicheremaeinae*. Habitus similar to the genus *Dolicheremaeus* Jacot, 1938. Tutorium present, lateral lamelliform expansion short. Two pairs of condyles on the prodorsum and two pairs on the notogaster. Pedotecta 2-3 trapezoid. Six (!) pairs of notogastral setae, setae in postero-marginal position (p_1 - p_3 , h_3) reduced, even their insertion invisible. Epimeral setal formula: 3-1-3-3. Genital plates darker than the rest of the ventral surface. Anogenital setal formula: 4-1-2-0. The adanal setae completely reduced.

Type species: *Borneremaeus hauseri* sp. n.

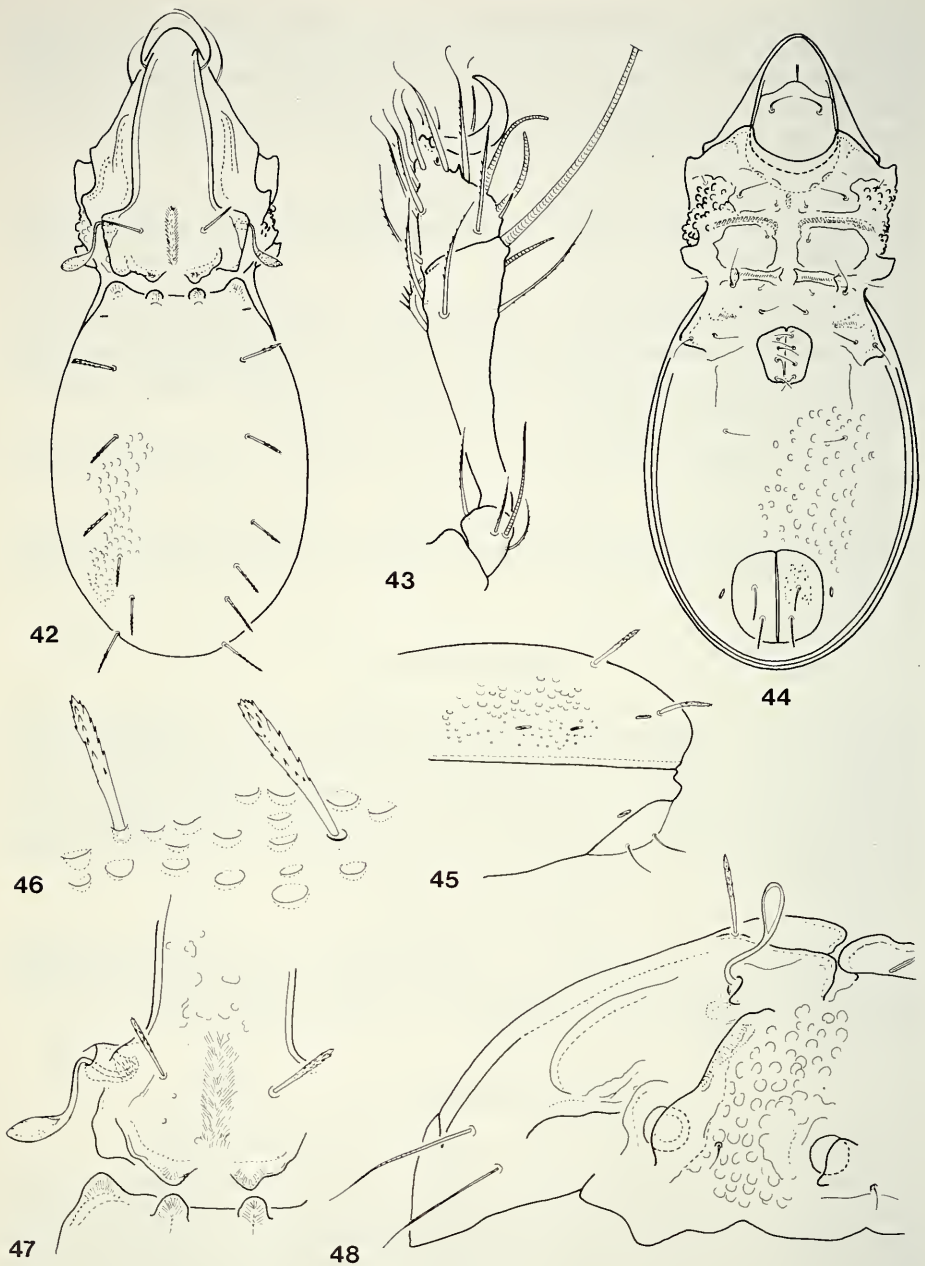
Remarks: The strong reduction in the number of the notogastral and the adanal setae is entirely unknown in this family and also in the majority of the other Oribatid families. I consider this character as sufficient for defining the new genus.

Borneremaeus hauseri sp. n.

Measurements. — Length: 510-616 μm , width: 216-275 μm .

Prodorsum: Lamellae long, reaching to the insertion of lamellar setae. These are longer than the rostral ones; both pairs setiform, finely ciliate. Interlamellar setae short, bacilliform. Prodorsal condyles well separated from each other, their shape is shown in Fig. 42. Tutorium bent anteriorly, without apex. Lateral lamelliform expansion short, not reaching the insertion of rostral setae (Fig. 48). Interlamellar surface rarely foveolate.

Lateral part of podosoma: Pedotecta 2-3 weakly developed. Surface pustulate (Fig. 48).



FIGS 42-48.

Borneremaeus hauseri gen. n., sp. n. — 42: dorsal side, 43: leg I, 44: ventral side, 45: posterolateral part of notogaster, 46: sculpture and notogastral setae of the notogaster, 47: sejugal region and sensillus, 48: prodorsum from lateral view.

Notogaster: Notogastral condyles small, originating far from each other. Surface of notogaster ornamented by large and deep alveoli (Fig. 46), their shapes strongly variable. Lateral margin only rarely foveolate (Fig. 45). Six pairs of dilated, well-spiculate notogastral setae present. Setae in posteromarginal position completely reduced.

Coxisternal region: Apodemes weakly developed, *ap.3* absent, epimeral borders also hardly observable. Epimeral setae different in lengths, setae *1b* and *3b* much longer than the others. Surface of this region finely punctate, but the anterolateral field pustulate, some foveolae also visible on the epimeres 3-4 (Fig. 44).

Anogenital region: Surface ornamented by alveoli, as on the notogastral surface. Genital plates smooth, anal plates foveolate. Genital and aggenital setae simple, long. Anal setae thicker than these, finely roughened and blunt at tip. Adanal setae absent. Lyrifissures *iad* in adanal position.

Legs: Type of the ultimate setae: L-L-S-S. Tarsus of leg I (Fig. 43) bearing a triangular "spine".

Material examined: Holotype: Sab-82/17; 13 paratypes: from the same sample. Holotypes and 8 paratypes: MHNG, 5 paratypes (1312-PO-88): HHNM.

Remarks: The reduction of the setae on the notogaster and in the anogenital region in this genus is a unique feature for the family *Otocephidae* Balogh, 1961.

I dedicate the new species to my friend Dr. B. Hauser (Genève) the collector of this very rich material.

***Dolicheremaeus bruneiensis* Aoki, 1967**

SUPPLEMENTARY DESCRIPTION.

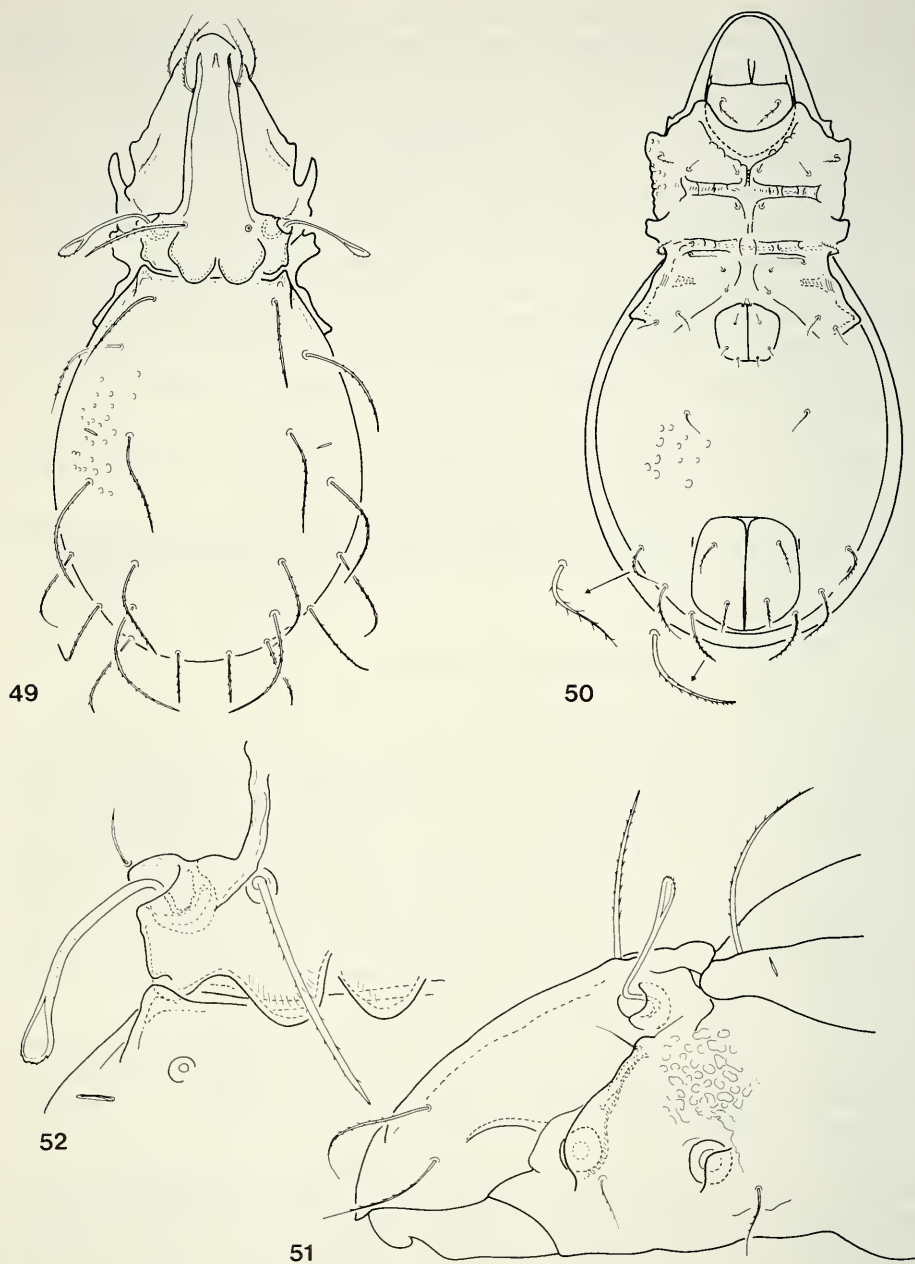
Prodorsum: Lamellae long,, slender, located in the median part, comparatively near to each other, gradually converging anteriorly, without sharp cuspis. Lateral lamelliform expansion short, curved downwards, ending far from the insertion of the rostral seta (Fig. 51). Lamellar and rostral setae strong, lamellar setae originating behind the rostral ones. Surface weakly ornamented, interlamellar region smooth, lateral part, along the lamellae, covered by weak pustules. Interlamellar seta blunt at tip, longer than sensillus. Exobothridial setae short, but ciliate. Sensillus directed backwards, its head wide, with some sharp spines and spicules on its apical margin (Fig. 52). Median pair of prodorsal condyles very large, round, much larger than the lateral ones (*co. pl.*). No other sculpture is observable on the basal part of prodorsum.

Notogaster (Fig. 49): Median pair of condyles (*co. nm*) completely reduced, lateral pair also small, nearly triangular. Surface of the notogaster foveolate. Ten pairs of notogastral setae, all finely ciliate and not sharply pointed. Among the lyrifissures *ih* opening far anteriorly from *h*₃, while *ip* between *p*₃ and *h*₃.

Coxisternal region (Fig. 50): Both pairs of transversal apodemes (*ap. 2*, *sp. sej*) very long and connected with each other medially. Epimeral region without any characteristic sculpture, only some transversal ridges present on the second and sejugal borders. Epimeral setae normal, all ciliate. Setae *4b* and *4c* close to each other.

Anogenital region: Ventral plate foveolate, similar to notogastral surface, genital and anal plates lacking sculpture. Genital and aggenital setae short, fine; anal and adanal setae thick, densely ciliate.

Legs: Tarsus of leg I without triangular teeth. Type of the ultimate setae: L-S-S-S.



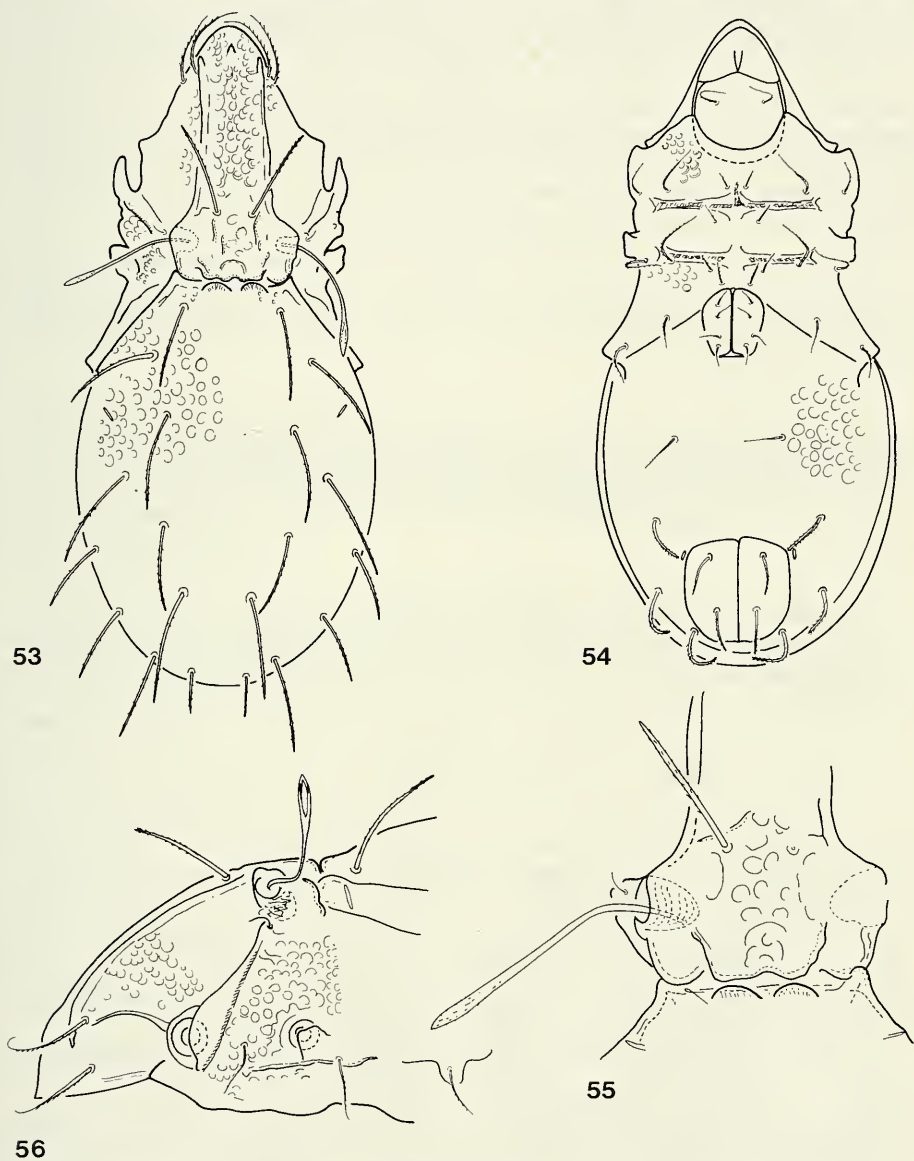
FIGS 49-52.

Dolicheremaeus bruneiensis Aoki, 1967. — 49: dorsal side, 50: ventral side, 51: prodorsum from lateral view, 52: sejugal region and the sensillus.

***Dolicheremaeus cicatricosus* sp. n.**

Measurements. — Length: 398-460 μm , width: 168-209 μm .

Prodorsum: Lamellae very long and running nearly parallel. Lateral lamelliform expansion strongly curved anteriorly and directed toward the insertions of



FIGS 53-56.

Dolicheremaeus cicatricosus sp. n. — 53: dorsal side, 54: ventral side, 55: sejugal region and sensillus, 56: prodorsum from lateral view.

lamellar setae. Surface with a heavy and characteristic sculpture consisting of large and deep alveoli. This sculpture is especially strong in the interlamellar region, where also some ribs are visible (Fig. 53). Medially, in front of the lamellae, also a sharp protuberance present. Lamellar and rostral setae setiform, barbed and terminating in fine tips. Interlamellar setae very long, blunt at tip, rarely ciliate. Peduncle of the sensillus very long, its head small, lanceolate and finely roughened. Interbothridial region strongly narrowed basally, the two large median condyles are connected with each other (Fig. 55).

Notogaster: Its surface — similar to that of prodorsum — also with rough sculpture, consisting of deep alveoli. Both pairs of notogastral condyles are much smaller than the condyles on the prodorsum, *co. nm.* originating far from each other. Ten pairs of notogastral setae present, similar in form, all blunt at tip and rarely ciliate, but setae p_1 only half as long as p_2 . Five pairs of lyrifissures present, *im* located far anteriorly, between setae *la* and *lm*, *ih* opening in front of, *ip* behind the seta h_3 .

Coxisternal region: Surface of median part ornamented by sparse, lateral part by dense alveoliar sculpture. Apodemes 2 connected with each other, sejugal ones ending free. Epimeral region bordered by a sharp, straight line posteriorly, which run on either side from the genital aperture to the discidium (Fig. 54). All epimeral setae long and strong, all ciliate.

Anogenital region: Genital plate without any sculpture, setae g_1 originating comparatively far from the anterior margin of genital plates. Adanal setae thick, blunt at tip, distinctly barbed, anal setae normal, setiform.

Legs: Tarsus of leg I without triangular teeth dorsally. Type of the ultimate setae: L-S-S-S.

Material examined: Holotype: Sab-82/42; 7 paratypes: from the same sample. Holotype and 4 paratypes: MHNG, 3 paratypes (1313-PO-88): HHNM.

Remarks: The new species is related to *D. nepalensis* Aoki, 1967. However, it can be distinguished from it and from nearly all other species of the genus by the very strong sculpture.

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